

Remarks

In response to the Office Action mailed September 7, 2006, the present application has been carefully reviewed and amended. Applicant respectfully requests entry of the amendment and reconsideration of the application.

Rejections Under 35 U.S.C. § 102

Claims 1-3, 6, 7, and 17 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,629,858 to Kyle. [Paper 20060829, page 3]

Specifically, the Primary Examiner states that Kyle teaches “a method of altering a pile fabric” and “illuminating the pile fabric by means of a laser beam.” [Paper 20060829]. Applicant acknowledges this characterization of Kyle.

However, the Primary Examiner continues “This method forms a “stochastic image pattern” to the extent recited in claims 1 and 17.” [Paper 20060829, page 3] Applicant respectfully submits Kyle does not disclose a stochastic image pattern.

As described in paragraph 31, lines 4-6, the stochastic image process “transforms a true color image to a series of uniformly sized dots that correspond to the grayscales present in the true color image.” Kyle does not disclose forming a stochastic image pattern in a given region of pile fabric. In fact, Kyle teaches that the design is limited to contrasting

patterns so that it can be easily detected by a photosensing means (column 2, lines 24-28). Specifically,

method onto pattern 17. Designs 19 must contrast with the fields 21 or remainder of pattern 17 to be easily detected by a photosensing means. Pattern 17 is oriented parallel to substrate 11, so that each point on pattern 17 has a spatially corresponding point on substrate 11.

In addition, Claims 1 and 17 have been amended to add further limitations.

#### Claim 1

Independent Claim 1 now recites in part:

"the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image" and "the given length of at least 25% of the fibers in the given region of pile fabric within the stochastic image pattern is maintained."

Support for these amendments are found in paragraph 32, lines 16-18, and paragraph 35, lines 11-13, respectively. Kyle does not have any disclosure of shortening fibers at heights that correspond to a dot density of a stochastic image. Further, Kyle does not disclose that the length of some of the fibers within the stochastic image pattern is maintained. Rather, Kyle discloses engraving an area 41 on a substrate 11 simply according to the presence or absence of designs 19 on pattern 17 (column 2, line 51-54).



**FIG 3**

Thus, Applicant respectfully submits the asserted rejection of Claim 1 has been overcome.

As Claims 2, 3, 6 and 7 depend from Claim 1 and include all the limitations thereof, these claims are also believed to be in condition for allowance.

**Claim 17**

Independent Claim 17 has been amended to recite in part "the reduced fiber height within each of the illuminated areas corresponds to a dot density of a stochastic image." Since Kyle does not disclose this claim limitation as discussed *supra*, Applicant respectfully submits the asserted rejection has been overcome.

**Rejection of Claims 4, 5, and 8-11 Under 35 U.S.C. § 103**

The Primary Examiner rejected Claims 4, 5, and 8-11 as being unpatentable over U.S. Patent 4,629,858 to Kyle. [Paper 20060829, page 4]

To establish a case of *prima facie* obviousness, three criteria must be met. First, if two or more references are cited, there must be some teaching, suggestion or motivation, either in the references themselves or in the knowledge generally available to one having ordinary skill in the art, to modify the references or to combine the reference teachings. Second there must be some reasonable expectation of success. Finally, the prior art reference must teach or suggest all of the claim limitations. In the present case, the reference cited by the Primary Examiner does not

teach or suggest all of the claim limitations. Applicant respectfully traverses the rejection.

#### Claims 4 and 5

The Primary Examiner asserts that it would have been obvious “to illuminate spaced areas in the method of Kyle in a circular pattern” and “to illuminate at least 25 areas per inch in the method of Kyle.”

Claims 4 and 5 depend from Claim 1, and include all the limitations thereof. That is, these claims recite in part, “the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image” and “the given length of at least 25% of the fibers in the given region of pile fabric within the stochastic image pattern is maintained.” In view of the amendments to Claim 1 as set forth above, Applicant submits Kyle has been overcome. In fact, Kyle reduces all the fibers within an area 41. In contrast, these claims recite in part, “at least 25% of the fibers in the given region of pile fabric within the stochastic image pattern is maintained.”

Kyle does not include the limitation of reducing the height of fibers according to a corresponding dot density of a stochastic image. The method of Kyle also does not disclose that at least 25% of the fibers within the stochastic image pattern are maintained. Kyle, therefore, does not teach or suggest all the claim limitations. Applicant respectfully submits the outstanding rejection of Claims 4 and 5 have been overcome.

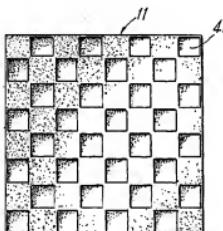
Claims 8-11

The Primary Examiner asserts that it would have been obvious to "illuminate spaced areas in the method of Kyle such that each illuminated area is less than 1000 microns" as disclosed in Claim 8.

Applicant respectfully submits modification of a reference to be expressly contrary to the disclosure, or render the reference inoperative for its intended use cannot sustain a rejection under §103.

Kyle is expressly directed to designs formed in the surface of an eighteen inch square tile substrate 11.

designs are fused into the surface of eighteen inch square tile substrate 11 having nylon filament pile. Of (Col. 3)



**FIG 4**

As seen in Figure 4 of Kyle, the eighteen inch substrate 11 has 64 squares (an 8x8 matrix). Thus, each square has an area of approximately 5 square inches, or 2.25 inches on a side. As 1 inch = 25,400, the illuminated areas of Kyle spaced by approximately 57,150 microns. Applicant respectfully submits the 57,150 micron spacing of illuminated

areas in Kyle cannot sustain a rejection of the recited less than 1,000 microns as obvious.

As amended, Claim 8 recites “the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image.” As set forth above, Kyle does not disclose reducing fiber heights according to a dot density of a stochastic image pattern. Rather, Kyle discloses a 2.25 inch by 2.25 inch design 19 that is easily detected by a photosensing means (column 2, lines 24–28). Thus, Kyle detects whether there is a contrast in a pattern and simply engraves a material when the contrast is detected (see column 2, line 51–54). In Kyle, the height of each engraved fiber is not adjusted according to the amount of contrast provided in the pattern. Thus, Applicant respectfully submits the rejection of this claim has been overcome.

Claims 9–11 depend from Claim 8, and include all the limitations thereof. That is, these claims recite in part, “the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image.” In view of the amendments to Claim 8 as set forth above, Applicant submits that Kyle has been overcome. Therefore, Applicant respectfully submits the outstanding rejection of Claims 9–11 has been overcome.

**Rejections of Claims 1–11 and 17 Under 35 U.S.C. § 103**

The Primary Examiner alternatively rejected Claims 1–11 and 17 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,629,858

to Kyle in view of U.S. Patent 5,990,444 to Costin. In view of the amendments to Claims 1, 8 and 17, applicant respectfully traverses the rejections of those claims as the references cited by the Primary Examiner do not teach or suggest all of the claim limitations. In view of the present amendments, Applicant respectfully requests reconsideration.

The Primary Examiner asserts that it would have been obvious to apply the method of scribing graphics on materials using a laser of Costin to the method of engraving carpets described in Kyle to produce a greater number of pattern types. [Paper 20060829, page 7]

**Claim 1**

Claim 1 has been amended to recite in part “illuminating the pile fabric at spaced areas in the stochastic image pattern to shorten the fibers within the area of illumination, wherein the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image.” Support for this limitation is found at paragraphs 32- 37. Claim 1 has also been amended to recite in part “the given length of at least 25% of the fibers in the given region of pile fabric within the stochastic image pattern is maintained.” Support for this limitation is found at paragraphs 33 and 35, and Figure 4 of the present application.



**FIGURE 4**

In contrast, Kyle does not teach relating the dot density of a stochastic or dithered image with the depth of truncation of each fiber

60. Rather, Kyle is directed towards engraving a design into a substrate 11 by detecting a contrasting pattern and then engraving an area 41 at a given height accordingly.



**FIG 3**

(Kyle)

Kyle does not teach, suggest or motivate truncating the fibers in a given area at various heights. The Primary Examiner asserts that in Kyle, the length of the fibers adjacent the illuminated areas is maintained. However, Kyle does not teach maintaining at least 25% of the given length of the fibers in area 41 to maintain the hand of the pile fabric. Rather, Kyle teaches engraving the entire area 41 according to a contrasting pattern of black and white (column 2, lines 26–28), not a stochastic image pattern which corresponds to a grayscale image (paragraph 31).

Costin does not cure this defect. The Primary Examiner asserts that "Costin discloses that the image may be formed by pattern dither or diffusion dither" and that "it would have been obvious to produce the pattern in the method of Kyle in a stochastic or dithered image. . .in order to allow for a greater variety of pattern types to be produced by the laser."

Costin discloses using a laser to scribe a graphic onto material by altering "the physical and/or chemical properties of the material to scribe a graphic" (column 1–2, lines 66–1). Costin refers to using a laser to

gradually change the shade of the material to create grayscale type graphic images on materials (column 17, lines 6–13). However, Costin does not teach or suggest relating the dot density of a stochastic or dithered image with the depth of truncation of each fiber. Further Costin does not teach leaving at least 25% of the fibers in a given region of pile fabric within the stochastic image pattern to preserve the hand of the fabric.

Thus, since Costin does not cure the deficiencies of Kyle, this claim is believed to be in condition for allowance.

### Claims 2–7

Claims 2–7 stand rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent 4,629,858 to Kyle in view of U.S. Patent 5,990,444 to Costin. [Paper 20060829, page 6] Applicant respectfully traverses the rejection.

Claims 2–7 depend from Claim 1, and include all the limitations thereof. Therefore, as discussed *supra*, since Kyle in view of Costin fails to teach all the claim limitations of Claim 1, it also fails to teach or suggest all of the claim limitations of Claims 2–7. Applicant respectfully requests removal of this rejection.

## Claim 8

The Primary Examiner further asserts that it would have been obvious to "illuminate spaced areas in the method of Kyle such that each illuminated area is less than 1000 microns" as disclosed in Claim 8.

However, the Primary Examiner has not met the initial burden of providing some suggestion of the desirability of doing what the Applicant has done. As stated in *Ex parte Clapp*.

To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Kyle does not recognize or disclose that each illuminated area can be less than 1000 microns. Rather, Kyle only suggests engraving the entire area 41 according to a contrasting pattern on the order of 57,150 microns. Thus, the illuminated area of less than 1000 microns is well beyond the contemplation of Kyle and does not involve only routine skill in the art to achieve.

Further, Claim 8 has been amended to add the limitation of a method wherein "the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image." In view of this amendment, Applicant submits that the method disclosed in

Kyle has been overcome as set forth above. Costin does not cure this defect. While Costin describes scribing an image so that it has an appearance of a greyscale image (column 17, lines 6-8), it does not suggest corresponding the fiber heights with dot density to create an image in a pile fabric. Rather, it refers to creating greyscale type images having different shades of base color (column 17, lines 6-13). Thus, since Costin does not cure the deficiencies of Kyle, this claim is believed to be in condition for allowance.

#### **Claims 9-11**

Claims 9-11 depend from Claim 8, and include all the limitations thereof. That is, these claims recite in part, “the height reduction of the fibers within each of the illuminated areas corresponds to a dot density of a stochastic image.” In view of the amendment to Claim 8 as set forth above, Applicant submits that Kyle has been overcome. Costin does not cure the deficiencies of Kyle and therefore, Applicant respectfully submits that the outstanding rejection of Claims 9-11 has been overcome.

#### **Claim 17**

The Primary Examiner rejected Claim 17 as being unpatentable over U.S. Patent 4,629,858 to Kyle in view of U.S. Patent 5,990,444 to Costin. [Paper 20060829, page 6] Applicant respectfully traverses the rejection. Claim 17 has been amended to include the same distinction over the cited reference, that being, “the reduced fiber height within each of the illuminated areas corresponds to a dot density of a stochastic

image." Since Kyle does not disclose this claim limitation and Costin does not cure the defect as discussed *supra*, Applicant respectfully submits the asserted rejection has been overcome.

**Affirmation of Election**

The Primary Examiner, Amy B. Vanatta, has requested that Applicant affirm election of Species A, Claim 17 to fleece which was made without traverse during a telephone conversation with the Examiner Vanatta on August 24, 2006 in regards to a reply filed on August 9, 2006. Applicant hereby affirms election of Species A, to Fleece, Claim 17.

**Conclusion**

Applicant respectfully submits all the pending claims, Claims 1-11 and 17 are in condition for allowance and such action is earnestly solicited. If any further issues remain, the Primary Examiner is cordially invited to contact the undersigned so that such matters can be promptly resolved.

Respectfully submitted,

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